What is claimed is:

1. A method of decoding a sequence of frames in a communication system having a predetermined decoding time constraint per frame, such method comprising:

decoding a first frame of the sequence of frames for a time period longer than the predetermined time constraint; and

decoding at least one other frame of the sequence of frames by less than the predetermined time constraint so that an average decoding time of all decoded frames is less than or equal to the predetermined time constraint.

2. The method of claim 1 further comprising storing at least one frame of the sequence of frames.

3. The method of claim 2 wherein the at least one stored frame is stored in an input storage device.

4. The method of claim 3 further comprising determining an input storage device length for reducing input storage frame overflow.

5. The method of claim 4 wherein the step of determining the input storage device length is based on the following equation:

$$Fb = 1 - \sum_{i=0 \text{ to } L} Pr(b = i)$$

L being the input storage device length, Fb being the Frame Error Rate caused from input storage device frame overflow, Fe being a known Frame Error Rate caused from error, Ft being the total Frame Error Rate caused by the sum of Fe and Fb, PF being a predetermined precision factor, and $Fb < (Fe/(PF))$.

6. The method of claim 1 further comprising checking the frames of the sequence for errors.

7. The method of claim 6 further comprising selectively storing frames of the sequence of frames in an alternate storage device for supplementary decoding.

8. The method of claim 7 further comprising the step of supplementary decoding the stored frames out of sequence.

9. The method of claim 8 further comprising the step of rechecking the stored frames for errors.

10. The method of claim 9 further comprising the step of selectively resequencing the stored frames based on the error recheck.

11. The method of claim 10 further comprising using a look-up table to resequence the frames processed out of sequence.

12. The method of claim 9 further comprising selectively storing the frames in an output storage device based on the error recheck.

13. The method of claim 6 further comprising selectively storing frames of the sequence of frames in an output storage device if the frames are free of detected errors.

14. The method of claim 6 wherein the frames are decoded by a processor having a decoding speed, and the frames are checked for errors after a preselected decoding time, the decoding time based on the decoding speed.

15. The method of claim 6 wherein the decoding of frames comprises performing decoding iterations, and wherein the frames are checked for errors after a preselected number of decoding iterations have been performed.

16. The method of claim 6 wherein the decoding of frames comprises performing decoding iterations, and wherein the frames are checked for errors after each decoding iteration has been performed.

17. The method of claim 6 wherein a Cyclic Redundancy Check is used to check for errors.

18. The method of claim 6 further comprising storing at least one frame of the sequence of frames in an input storage device.

19. The method of claim 6 further comprising terminating the decoding of frames based on the error check.

20. The method of claim 1 wherein a maximum a posteriori method is used to decode.

21. The method of claim 1 wherein a soft output Viterbi method is used to decode.

22. The method of claim 1 further comprising storing at least one decoded frame in an output storage device.

23. A method of decoding a sequence of frames in a communication system, such method comprising:

decoding the frames of the sequence of frames at a variable rate,

outputting the decoded frames of the sequence of frames to an upper layer at a constant rate.

24. The method of claim 23 further comprising the step of storing the decoded frames.

25. The method of claim 24 wherein the decoded frames are stored in an output storage device.

26. A method of decoding a sequence of frames in a communication system, such method comprising:

determining a storage device length to reduce input storage device frame overflow,

setting the input storage device to the determined length,

storing at least one frame of the sequence of frames in the input storage device, and

decoding at least one frame of the sequence of frames.

27. The method of claim 26 wherein the step of determining the input storage device length is based on the following equation:

$$Fb = 1 - \sum_{i=0 \text{ to } L} Pr(b = i)$$

L being the input storage device length, Fb being the Frame Error Rate caused from input storage device frame overflow, Fe being a known Frame Error Rate caused from error, Ft being the total Frame Error Rate caused from Fe and Fb combined, PF being a predetermined precision factor, and $Fb < (Fe/(PF))$.

28. An apparatus for decoding a sequence of frames in a communication system having a predetermined decoding time constraint per frame, such apparatus comprising:

a means for decoding a first frame of the sequence of frames for a time period longer than the predetermined decoding time constraint;

a means for decoding at least one other frame of the sequence of frames in less than or equal to the predetermined decoding time constraint; and,

a means for storing the at least one other frame while the first frame is decoded for longer than the predetermined decoding time constraint, and

wherein the average decoding time of all decoded frames is less than or equal to the predetermined decoding time constraint.

29. The apparatus of claim 28 further comprising a means for checking the frames of the sequence for errors.

30. The apparatus of claim 29 further comprising a means for selectively storing frames of the sequence of frames for supplemental decoding.

31. The apparatus of claim 28 further comprising a means for selectively storing decoded frames.

32. An apparatus for decoding a sequence of frames in a communication system having a predetermined decoding time constraint per frame, such apparatus comprising:

A decoder configured to decode a first frame of the sequence of frames for a time period longer than the predetermined decoding time constraint and configured to decode at least one other frame of the sequence of frames in less than or equal to the predetermined decoding time constraint, and

an input storage device configured to store the at least one other frame while the first frame is decoded for longer than the predetermined decoding time constraint, the input storage device coupled to the decoder

wherein the average decoding time of all decoded frames is less than or equal to the predetermined time period.

33. The apparatus of claim 32 further comprising an error check configured to check frames for errors, the error check coupled to the decoder.

34. The apparatus of claim 33 wherein the decoder and error check are a processor.

35. The apparatus of claim 33 further comprising an alternate storage device configured to store frames having detected errors, the alternate storage device coupled to the decoder.

36. The apparatus of claim 35 further comprising a sequencer for resequencing frames.

37. The apparatus of claim 36 wherein the sequencer and the decoder are a processor.

38. The apparatus of claim 32 further comprising an output storage device configured to store decoded frames, the output storage device coupled to the decoder.

39. The apparatus of claim 32 wherein the decoder is a processor.

40. An apparatus for decoding a sequence of frames in a communication system, such apparatus comprising:

a means for decoding the frames of the sequence of frames at a variable rate,

a means for storing the decoded frames, and

a means for outputting the decoded frames of the sequence of frames to an upper layer, and

wherein the decoded frames are outputted pursuant to a predetermined process.

41. An apparatus for decoding a sequence of frames in a communication system, such apparatus comprising:

a decoder configured to decode the frames of the sequence of frames at a variable rate, and

an output storage device configured to output the decoded frames of the sequence of frames to an upper layer, and

wherein the decoded frames are outputted at a constant rate.